NOAA Coastal Services Center
Coastal Management Fellow
Proposal

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Introduction

Minnesota, the land of 10,000 lakes and one Great Lake – Lake Superior. The largest of the Great Lakes holds 10% of the world's fresh water. Cold and deep, it's rugged shoreline features volcanic rock cliffs. The coastal highway, designate as an All American Road, travels though the rocky cliffs and a ridgeline of boreal forest. Tunnels cut through the bluffs that have made the North Shore such a popular tourist attraction. North Shore rivers cut their way through the softer rock on their brief but tumultuous journeys from the uplands to Lake Superior. The gorges of most of these streams cut through still more volcanic flows accounting for the spectacular waterfalls found along the shore. Within the coastal area there are twelve cities, eight state parks, five marinas, a national monument, portions of a national forest, two Indian reservations and an international seaport.

Minnesota's Lake Superior Coastal Program

The first attempt at developing a coastal program under the Coastal Zone Management Act in the late 1970's failed. In 1992, a new initiative began using a public participation process that resulted in the successful development of a program that received approval in July 1999. The lead agency for Minnesota's Lake Superior Coastal Program (MLSCP) is the MN Department of Natural Resources (MN DNR)– Waters. Now in the fourth year of program implementation, MLSCP recognizes the need for additional resources to address some long-standing issues.

Geographically, a six-mile inland township coastal program boundary incorporates the shoreline of Lake Superior from the Canadian Border to the City of Duluth, the Duluth-Superior Harbor, the St. Louis River estuary, and follows the St. Louis River to the City of Cloquet. 190 miles of Lake Superior shoreline and twenty miles of river habitat create our coastal community. All or parts of thirty-one local units of government have some sort of jurisdiction and management practices along this boundary.

Background

Minnesota's North Shore of Lake Superior continues to experience significant development pressures. Tourism and second home development play an increasing role in the economy of the area. Townhouses and condominiums, resort/condominium conversions, multi-unit commercial enterprises, traditional recreational developments and greater demand for land and water based recreational facilities all present economic development opportunities and resource management challenges. With these pressures come increased traffic, need for adequate wastewater treatment, storm water runoff controls, erosion and sediment control, wetland protection, habitat loss and water quality concerns. With clay soils over bedrock along steep slopes, impacts to water resource from human activity become significant.

Distinctively, the North Shore of Lake Superior offers unique land ownership patterns that create interest dynamics in perception and reality of land use decisions. Inland of Lake Superior in Lake and Cook Counties, 90% of the land base is in federal or state ownership with the Boundary Waters Canoe Area Wilderness and state School Trust funds lands.

Sparsely populated, most concentrations of people live within six miles of the shore. At the waters edge, a reversal of ownership occurs. Here, ownership is primarily private with the remaining lands publicly owned by the state with eight state parks, five public marinas and several cities. This dynamic sets up on ongoing debate, which often polarizes issues of any additional public ownership with land use controls that favor tax base generating revenues.

As in many regions, there are multi-jurisdictions participating in permitted land and water use activities within the coastal area. Federal and state agencies and local units of government all issue a variety of wetland, land use and water quality permits that protect habitat, control run off and wastewater, regulate lot sizes, building heights and impervious surfaces. This proliferation of permit requirements by each level of government has resulted in a confusing, and at times uncoordinated effort to protect coastal resources and balance the rights of private property owners. In Minnesota, this list includes the following regulatory programs:

Agency	**Regulatory program**
Army Corps of Engineers	404 Wetland Permits
MN Pollution Control Agency (MPCA) for EPA	National Pollution Discharge Elimination System (NPDES)
MPCA for EPA	401 Water Quality Certification
MN DNR – Fisheries	Aquatic Plant Management
MN DNR Waters	Public Waters work permits
Local units of gov't for MN DNR	Shoreland Rules
Local units of gov't for Board of Water & Soil Resources (BWSR)	Wetland Conservation Act
Local units of gov't for Board of Water & Soil Resources (BWSR)	Local Water Plans
Local units of government	Local zoning ordinance issuing condition uses and variances

In addition, there are many non-permitted activities and programs that have impacts on coastal resources, yet are too small to measure on their own. A better interface with those programs could help to address the growing issues of cumulative and secondary impacts.

The summer of 2002 highlighted this problem to the extreme. One example involved a landowner who wanted to build a storage facility and dock. He needed permits from the Army Corps of Engineers, the MN DNR and a county land use office. The combination of several jurisdictions, an outraged neighbor, a wetland violation and an experimental dock permit has evolved into a land use battle unparalleled. Literally thousands of hours have been spent trying to resolve this issue, with a lawsuit looking like the most likely outcome. Similar stories of contractor error with a bridge replacement that sent plumes of sediment into protected trout streams. These are only the stories of egregious known violations. Many others may occur that go unnoticed or unreported.

There is simply no data that exists to tell any of these land managers with permitting authority whether or not their process are successful in achieving their goals or if indeed they are protecting the resources they've been trained to protect.

We are proposing a project that develops a permit monitoring and compliance system to collect data for evaluation and better decision making to ensure the proper protection of the resources. A multi-level effort is required. MLSCP operates as a networked program and has built the relationships that allow for the possibilities of developing such a system. In addition, MLSCP funded a study that assessed the implementation of environmental ordinances that address erosion and sedimentation control in the coastal area. Overall, the study revealed that while there were adequate ordinances in place, inconsistencies existed in the on-the-ground implementation of best management practices. Recommendations were made to address the perceived weaknesses in each of the four counties. That analysis provides a framework for this proposal. The lack of information of the effectiveness of permitting in the coastal area was also addressed in the Section 309 Assessment and Strategy document completed in April 2001.

Goals and Objectives

1. Develop a comprehensive permit monitoring and compliance system.
   - Compile information from other states and agencies.
   - Engage partners at the federal, state and locals.
   - Design GIS-based data management systems.
   - Create an inventory of permanent erosion control measures.
   - Document non-permitted uses.

2. Evaluate the effectiveness of permitting programs.
   - Develop evaluation criteria.
   - Collect permitting data for database construction.
   - Participate in on-site review of permitted activities.
   - Monitor/document permit compliance.
   - Create multi-level evaluation review panel.
   - Deliver report on effectiveness.

3. Develop decision-making tools that integrate existing programs.
   - Develop local partners.
   - Compile existing coverages and programs that can be adapted for use.
   - Develop programs, GIS products, guidebooks and customized products.
   - Design an integrated tool to issue land use permits.

4. Improve consistency of decision-making and permit compliance.
   - Develop model permit conditions.
   - Research and incorporate model ordinances.

5. Evaluate trends based upon review cumulative and secondary impacts.
   - Link permitted and non-permitted activities within the data base.
   - Improve the communication between agencies and entities regulating activities.
   - Improve the communication regarding permitted and non-permitted activities to make better assessments of cumulative impacts.

Milestones and Outcomes

Date	Item	Outcome
November 2003	Compile info from other states and existing coverages, products for possible use	Report on options, catalog of products
December 2003	Meet with all possible partners, gather ideas, input and confirm process	Partnership agreement, process outline
March 2004	Design GIS-based data management system	Database developed and populated with permitting data
May 2004	Develop evaluation criteria	Evaluation criteria approved
May – October 2004	On site reviews of permitted activities	Digital images and GPS points of sites visited and imported into Landview
August 2004	Develop audit measures, monitoring and best management practices, model permit conditions	Manual with procedures and practices described.
December 2004	Begin to integrate new data with existing data layers	First product developed using existing and new data
May 2005	Draft design of products developed based upon partners requests and feasibility	New products delivered
August 2005	Project wrap up and evaluation tool finalized	Report on effectiveness of permitting and recommendations.

Project Description

Phase One of this project begins with a research and scoping component that serves to familiarize the Fellow with the physical and organizational landscape, the regulatory environment, and the region and national resources available to address the projects goals. This period of time will be used to develop relationships with local land use officials, and the state and federal agency staff that they will be working closely with.

Working either by geographic region or perhaps topic area, the Fellow meets with key individuals and programs to assess their needs and opportunities for collaboration and sharing of data. With a goal to collect existing data and reduce redundancies and duplication of efforts, this data will be then evaluated for compatibility and value to the overall mission. A well-developed and widely used Forestry best management practice auditing systems currently exists in Minnesota. This process may serve as a model for the design of this project. Minnesota Forest Resources Council implements this voluntary site-level water quality and wetland protection best management practices program. An important planning component includes consultation with this organization.

Within the first six months, the project begins to take shape with a clearer understanding of the design of the GIS-based data management system. A catalog of permitting databases takes shape. The data management system collects the audit measures, monitoring components and best management practices. In addition, the non-permitted activities need to be understood in order to assess their impacts in the later part of the study. An inventory of programs, people, activities and permanent erosion control measures completes the initial data gathering part of this project. This allows the development of a comprehensive permit monitoring and compliance system that will provide information necessary to evaluate the effectiveness of existing federal, state and local permitting programs on controlling nonpoint sources of pollution to Lake Superior.

The next phase progresses towards the evaluation component of the project. Working with the partners, shaping the criteria to determine the effectiveness of these programs and activities takes place in a collaborative atmosphere. Careful consideration must be paid to the concerns for autonomy each participant holds for their regulatory programs. That sentiment is particularly strong on the North Shore, but not insurmountable. All of the land managers seek sound information and tools for better decision making. With templates of the GIS-based data management in place, this phase collects the information to populate the data bases. As construction season begins, on-site reviews of past and current permitted activities provide the opportunity to collect GPS points, digital images and monitor compliance with the issued permits. This may be the one of the most important components of this project. Interviews with managers tell the same story of not enough staff and time to visit sites after issuing a permit. Only the problem areas received any additional attention and then it becomes disproportional to the whole. Approximately 100-150 permits of all types are issued within the coastal program boundary in a year. Ideally, each site would be reviewed. Depending upon the best methods, monitoring a cross section of sites and determining a statistically valid sample allows for making a statement regarding the quality of the outcomes. Working with the partners in that site review, and evaluating the results of those reviews provides a multi-level assessment for a report on the effectiveness of the permitting process.

A richness of data exists to assist decision makers, but that data is often inaccessible because of technology, training or time. Examples of data include existing programs such as MN DNR Landview-GIS viewer, MN DNR Permits DB permitting databases, MN DNR Natural Heritage Database, GIS coverages from the MN DNR Data Deli. In

addition, the MLSCP has provided funding to a variety of projects perfect for integration into this effort. These project include oblique aerial photography, land use, land cover layers, trout stream tributary mapping, stream monitoring data, coastal decision maker layers, stormwater data from Grand Marais and Two Harbors, wetland inventories, forestry inventories, hyperspectral video of North Shore streams and tributaries and watershed delineation and water resources inventory for the program boundary. The partners may also contribute and provide guidance in designing a system for adaptation for their local processes. With the existing data layers, feedback from partners and a prioritization of possible projects, the Fellow, with assistance from our GIS support specialist will develop relevant GIS products as tools to assist in building capacity for these entities for better decision making. A final product of an integrated tool to issue land use permits at the local level achieves the above goals of providing tools for better decision making and continued evaluation of effectiveness of permits and compliance. In addition to the integrated tool, development of model permit conditions and model ordinances provides additional resources to protect the coastal resources.

Towards the end of the project, with systems and data in place, it becomes possible to begin to evaluate the trends based upon review cumulative and secondary impacts. By linking the permitted and non-permitted activities within the data base, a better understanding of the facts allows for improved communication between agencies and entities that regulate activities. Assessing cumulative and secondary impacts is very difficult to ascertain without accurate and complete data. This process provides the tools to begin to make those linkages and anticipate changes to regulatory or voluntary practices that address the findings of the evaluations. By adding, where possible, the non-permitted activities, the picture becomes more complete. Clear communication between the partners provides opportunities to include conditions on permits to address these cumulative affects and therefore enhance the protection of our water resources in Minnesota.

Fellow Mentoring

Tricia Ryan, MLSCP Manager will serve as the primary mentor of the Coastal Management Fellow. Ryan focuses on developing strong relationships with individuals and believes one of the most important aspects of her job is developing others to be successful in their careers and lives. Her network is well developed and crosses many jurisdictional boundaries from academic to local to state to federal. Day to day supervision will be under Ryan as the manager on site. Her job classification is State Program Administrator Supervisor Principal. She has successfully completed training in employee supervision as well as participating in the DNR Management Development Program. In addition, she is currently a second year student pursuing a Masters of Arts in Management. Since the program is housed in a co-located facility with seven other divisions, the fellow will be exposed to other professional natural resources managers. Ryan will also provide assistance in finding housing to the Fellow during their tenure in Minnesota.

The fellow will also work closely with two MN DNR Area Hydrologists who implement the state Public Waters Works rules in the coastal area. In addition, consultation with the MPCA and the implementation of Phase I and II NPDES permits will be a strong component of this project. Opportunities exist to participate as a member of the Two Harbors Area Interagency Resource Management Team. The fellow will be introduced to the county and city land use officials and the federal agency partners.

Because this project addresses the statewide permitting program at the local level, additional consultation with MN DNR St. Paul Central Office staff will take place, with enhanced opportunities to interface with professional staff and at the upper management level. Addition support exists through the program with a GIS Support Specialist to assist the Fellow with the GIS components of the project.

Project Partners

We anticipate participation from Cook, Lake, St. Louis and Carlton County land use departments and water planners, the cities of Grand Marais, Silver Bay, Beaver Bay, Two Harbors and Duluth with interested in the design of the project, provide permitting information, sit on the evaluation criteria panel and provide feedback on the tools that will be designed for their use. Each of these entities implements local ordinances, and issue conditional use permits and variances controlling land use in the coastal area. The Soil and Water Conservation Districts of Cook, Lake, South St. Louis and Carlton Counties can participate at the closest level to the actual activities. State agencies such as the Board of Water and Soil Resources, MPCA, MN DNR Waters – Water Management Unit, MN DNR Lake Superior and Duluth Area Fisheries, MN DNR Forestry, MN DNR Trails and Waterways – Harbor Program, MN Department of Transportation each have a variety of responsibilities for implementing permitting programs and may serve as partners and provide raw data for the technical components of the project. The University of Minnesota – Sea Grant College and NEMO project will coordinate with their ongoing activities and GIS products that may be relevant to this effort. The federal agencies of the U.S. Forest Service and their interest in forest management practices and habitat issues may contribute GIS data. The Army Corps of Engineers will contribute wetland permitting data.

Cost Share Partners

DNR Waters will provide an office for the Coastal Management Fellow, located in the MLSCP offices in Two Harbors, MN. The Fellow will be given a Pentium 4 or higher computer with a high speed network connection to all of the MN DNR resources available, including printers and plotters. For state agency administrative purposes, the Fellow will be classified as a volunteer. Under state guidelines, the Fellow may drive state vehicles, be covered under state workers compensation rules and will be provided with a MN DNR e-mail address. As a volunteer, they should also use any MN DNR equipment. MLSCP's office is in the community of Two Harbors, MN, twenty five miles north of the City of Duluth, on Lake Superior. The program is housed in a MN DNR co-located facility with other DNR divisions including Ecological Services, Engineering, Enforcement, Forestry, Parks and Recreation, Trails and Waterways, Waters and Wildlife.